£98 TEXET TX-8000

TEN YEARS AFTER Texet drove Sinclair out of the pocket calculator market the TX-8000 is ready to take on the ZX-81 and the Spectrum. As with the calculators Texet hopes to win customers by aggressive pricing. But although the £98 TX-8000 is now the cheapest colour micro — by a whisker from the Oric and by £27 from the Spectrum — it has only 4K RAM as opposed to the 16K of its rivals.

The Z-80 based TX-8000 has a specification that, on paper, looks very good compared with the ZX-81. When it is compared with, for example, that of the Oric, then a number of weaknesses become apparent.

Of the three colour computers under £125 — the Spectrum, Oric and TX-8000 — the TX-8000 is the largest. It case is made of a cream plastic, which feels more brittle than the plastic used for its rivals — but it would still require an act of malice to break it. The design of the case is not as polished as that of its rivals, but it does have a gently sloping front which means the keys actually face the user.

The dimensions of the case are 12in. wide by 6in. deep, 2in. high at the rear and 1in. high at the front. The panel containing the keys is dark brown and sunken into the body. There are 45 keys in a rubber keyboard which is very similar to that of the Spectrum. Not only do the keys squash down in the same way they even have that distinctive clammy feel to them. If anything the Texet keyboard feels worse than the Spectrum's.

Individual keys are smaller than on the Spectrum, but there are more of them. Keyboard layout is based on the usual QWERTY typewriter formation, which the TX-8000 mimics better than the Spectrum. This necessitates fewer key depressions, especially in the case of punctuation symbols which can only be achieved by a shifted key on the Spectrum but have their usual typewriter keys on the TX-8000.

Above the first eight number keys there are the corresponding colour names; yellow, blue, red, buff, cyan, magenta, orange and green. This is the same colour set as on the Spectrum but with the addition of buff and orange. Interestingly, there is no black or white, which look in theory to be unobtainable.

When using the keyboard the letter pressed is what appears on the screen, even though certain Basic keywords are printed above and below the keys. The keywords are accessed by the kind of finger gymnastics that put me off the Spectrum when it first appeared. Alongside the keyboard is a power light which tells you when the machine is on, which sometimes is not apparent from looking at the screen.

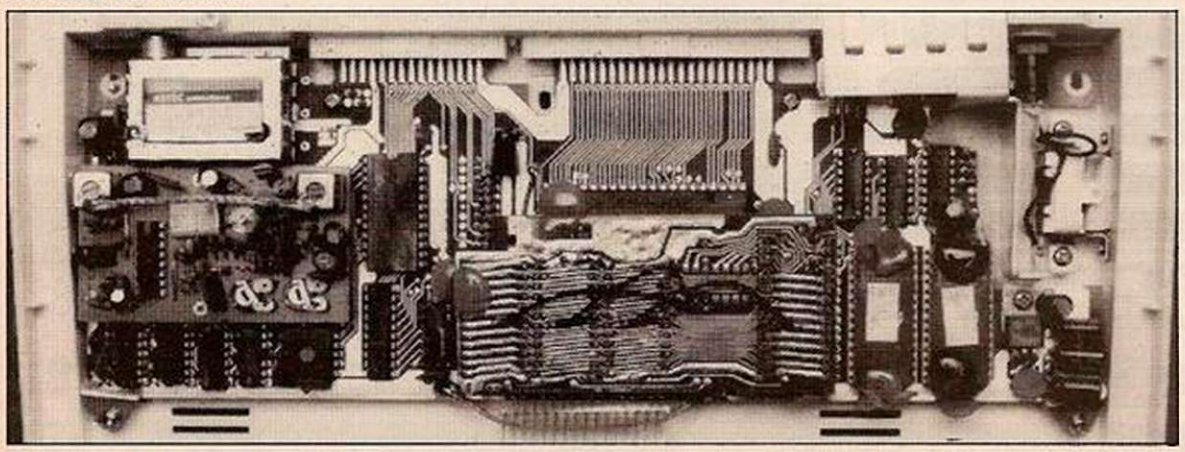
On the right-hand side of the machine is a rocker-type switch, to turn the power on and off. This is a welcome feature, as anyone using a Spectrum or ZX-81 will know that the continual insertion and removal of the power supply plug eventually works it loose. So a cold reset — that is a reset of the computer which clears the RAM — is a simple operation.

Although the machine is marketed in this country as the Texet TX-8000, elsewhere it is known as the Video Technology VZ-200. This is taking badge engineering to new heights. The Texet is exactly the same as the Video Technology machine except for the VZ-200 badge. Both machines are manufactured in Hong Kong, the factory-door price of the VZ-200 being $66 — less than £45.

The real significance of this similarity is that there are a number of interesting peripherals available for the VZ-200, which will work with the Texet. These include: 16K and 64K Ram extensions, joysticks, printer, light-pen, Modem, disc-drives and bar-code readers. There is also an interface unit which allows you to use any standard text or graphics printer. All these add-ons are manufactured by Video Technology in Hong Kong and will be available in the U.K. from Texet. Projected prices are: printer, £129; 64K Ram expansion, £52; £8 for a single paddle and £60 for a pair of cordless remote control joysticks.

Opening up the inside of the Texet is like digging in the garden of the Cricklewood house of horrors. A number of vaguely familiar objects are recognisable amongst the mess even though all the identifying codes on the chips have been painted out to preserve their anonymity. There is a black and white model of the VZ-200 in Hong Kong and one look inside the case of the Texet shows that it is basically a black and white computer that has been converted for colour. The colour circuitry is antique by the standards of the Oric or the Spectrum, with a large number of presets, pots, coils and resistors.

With internal circuitry that looks like this (below) it is not surprising that colours are displaced by half a character on screen.



On the rear of the machine are the usual power and TV output sockets. In addition there is a tape socket, which unlike conventional tape sockets is a stereo jack socket — the kind used on portable hi-fis. This connects to two mono jack plugs, red and black, the red one being the Ear connection and black the Mic.

There is also a monitor output — which will not work with most monitors. Also along the back of the machine, but covered by a couple of aluminium panels are the bus expanders. One is marked Memory Expansion and the other, Peripheral. This may imply that only one peripheral can be connected at a time. The panels are attached to the computer by two tiny screws.

Power for the micro comes from a transformer which would plug straight into the power socket except that it has a two-pin electric shaver-type plug. This needs a special adapter to enable it to be used with domestic U.K. power sockets. Unfortunately the pennies this adds to the price of the micro makes the Texet only a pound cheaper than the Oric.

Because the transformer itself is attached to the plug its weight causes it to work its way out of the socket. While this is not likely to be dangerous, due to the insulation on the pins, it does mean that a programming session can be ruined and all work lost due the the resulting power failure.

When the machine is powered up the message:

VIDEO TECHNOLOGY
BASIC V1.0

appears. The letters are in light green on a darker green background with the whole surrounded by a black border. The cursor — a square of light green, flashes on and off. If the on/off switch is flicked momentarily to the off position and back again a bizarre effect on screen is caused by the memory-mapped screen area of RAM being filled with garbage.

The TX-8000 has only 4K RAM — and 2K is available for programs, the other 2K is for the screen. The maximum size of a numeric array defined in a Basic DIM statement is 1313 locations and a string array can hold 1751 strings.

Of course should you decide to use arrays that big, there will not be any room left for the program. Anyone who has used the ZX-81 might think 2K is a lot of memory, especially when it does not have to store the display as well. If you were a bit tight for space, you could try storing numbers as strings though.

Texet's £98 colour computer reviewed by Bill Bennett.

Arrays may be multidimensional, but be warned, arrays of more than one dimension eat heavily into the memory. By the time you get to an array of seven dimensions, (2,2,2,2,2,2,2), you have run out of memory.

A simple line of Basic, such as:

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10 x=20
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only takes up four bytes so a reasonable program can be squeezed into the memory. However this compares very unfavourably with the Oric, which is only a fraction more expensive, but has a nominal 16K of RAM.

The organisation of the video memory is interesting, in the normal text mode — which is called from Basic by the command Mode(0), the first 512 bytes of video memory store the ASCII codes of the screen characters.

Any of the machine's character set of 255 characters can be Poked into this memory, and of course it is the area that the Print command uses.

All the usual characters appear in the set, together with their inverses. In addition there is a subset of graphic characters which consist of the character square divided into four smaller squares, filled in all possible combinations. This graphic subset is repeated four times. When the machine is initially turned on this character set appears in four different colours but use of the Color command — which is similar to Ink on the Spectrum — changes this, and the four sets seem to change to arbitary colours.

(continued on page 59)

(continued from page 57)

Color only affects the graphic symbols. There is no provision for printing words or letters in colour. What is strange is a lack of black or white on the screen. In practice the colour designated as Buff is slightly off-white and for most purposes can be used in its place. Black can be obtained only as the other colour in the graphic symbol character set.

There is a major problem with the colour on the Texet, it seems that each of the colours is attributed to a character space that is displaced half a character to the right of the printed character. That is, the printed characters and their assigned colours do not match up on the screen. This could be a fault in the review machine, but looking at the colour circuitry within it is not surprising.

It is a shame about the colour location problem, because the colours themselves are the brightest on any of the cheaper colour computers. The red is a little darker than it should be, but the blue and orange are as luminous as Day-Glo colours. The colours can be changed by altering the controls of your TV set, but the alignment problem cannot be ironed out.

The graphics characters can be printed or Poked on to the screen by using their character codes, but they are also accessible from the keyboard. To print them in, say, a pair of quotes inside a Print statement, you have to press both shift and control at once, then the relevant graphics key. Graphics are printed on the key switches, so you have some idea which one you are using. On the Z key a graphic block is printed which does not correspond to the character printed by that key, and keys: x, c, v, b, are merely repeats of characters that can be found elsewhere and consequently are not marked.

When printed directly from the keyboard the graphics characters appear in the default light and dark green colour set. After a Color command however they will be printed on the screen in that colour. The characters print on to the screen extremely fast in this mode, a thousand colour graphic strings taking less than 20 seconds. But there is a price to pay. A string can only contain graphic characters of one colour, and that colour is always the colour specified by the preceding Color command.

In the text graphics mode, mode 0, the screen is organised into 16 lines of 32 characters. This compares with 24 lines of 32 on the Spectrum — or more correctly 22 usable lines, and 28 by 40 on the Oric — which is a Prestel-like display.

High-Resolution mode, mode 1, is not really high-resolution at all. There are only 128 by 64 pixel locations, which is not much better than some — albeit much more expensive — microcomputers' text mode. This takes up the entire 2K of the video memory, which is interesting because 128 × 64 is not 2K, but 8K.

It works in a way that is similar to the text mode. There are 32 columns and 64 rows, each of which can have any value up to the eight-bit limit of 255. In text mode these normally represent characters, but in mode 1 they represent short graphic strings of four pixels, arranged in a line one after the other. Poking a value into one of these locations specifies the colour of each of those four pixels.

Obviously not all possible combinations of the eight colours in four pixels can be accommodated — there are 4,000. Unfortunately thanks to the colour misalignment, colour is not always visible in this mode.

Light green is the only possible background allowed in the so-called high-resolution mode. To let you know that the mode has changed from low-resolution/text to the pseudo high-resolution the border colour changes from soot black to the same lime green as the rest of the screen. This is to avoid any confusion between what might be called low-resolution 1 and low-resolution 2.

So bad is the colour misalignment that when a sine curve is displayed on the screen, it appears as black on the lime green background, with a hint of whatever the chosen colour was around the edges. This makes a mockery of the TX-8000's ability to display any of its eight colours at any one of the 128 by 64 locations.

Poking to the display is a complicated business in this mode, so there are adequate Basic commands to handle the graphics. They are Set and Reset — which plot and unplot points on the screen, and Point which examines a position and tells you if it is on or off.

Despite the ventilation both in the top of and under the case, the machine can become very hot. This could be due to the poor thermal contact of the heat sink, which was only loosely connected to the power supply semiconductor. This can cause problems. When the machine was turned off momentarily — due to the transformer falling out of the socket — the television had to be retuned to obtain a picture.

TX-8000 Basic is a fairly standard version of Microsoft Basic. It holds few surprises but does have some refinements that, if omitted, would make the Texet a very old-fashioned machine indeed. There is the Step to go with For . . Next, and the Else to supplement the If . . Then. As far as structures go, the TX-8000 is a non-starter.

Cassettes are loaded with the CLoad command, which causes the machine to print Bad on the screen whenever a load fails. Loading is extremely difficult because unlike the Spectrum there is no screen display to let you know how well the load is going.

CSave is accompanied by a Verify command, which no self-respecting micro would be seen without these days. All the tape operations are performed at 600 baud which is faster than the ZX-81 but slower than the Spectrum — the Oric allows you to choose speeds. The speed could be at the root of the loading problems but more likely the main offender is the power socket, which is located right next to the cassette socket.

Basic programming lines cannot be longer than two screen lines. If you try entering one longer you simply lose it without warning. The Sound command is feeble compared to the Oric. All it can do is play rather quiet tones — there is no loudspeaker. The Sound command has two parameters, the first being the pitch. This can have any integer value between 1 and 31. If a decimal number is input it simply truncates and plays the next one down. The second parameter is the length of the tone and this is variable between one and nine.

Numbers can only be printed to six significant figures which means that should a business be in such bad shape that it decides to install a TX-8000 as a computer, it will never be able process debts greater than £9,999.99. To ensure neatness trailing zeros are suppressed. ■

CONCLUSIONS

- The Texet TX-8000 may enjoy a brief period of fame as the cheapest colour computer around but too many compromises have been made.
- The colour display on the screen needs tidying up as does the internal construction of the Texet. If this was done then the peripherals available for the TX-8000 — especially 64K expansion for £52 might make it worth a second glance.
- The shortcomings of the £98 Texet make the high standards of the £99 Oric and the £125 Spectrum seem all the more remarkable.